

Grant Final Report

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4th Annual Pediatric Telehealth Colloquium

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Abstract

Purpose: The 4th Annual Pediatric Telehealth Colloquium was a two-day conference held on September 23-25, 2009 in Palm Springs, California. The purpose of this conference was to create a forum to discuss and disseminate information on pediatric clinical telemedicine. The goal was to demonstrate how pediatric telemedicine can increase access, reduce disparities, and increase the overall quality of care delivered to children in rural and underserved medical communities, and to do so in a financially sustainable framework. .

Scope: The Colloquium was the featured track of the third mid-year American Telemedicine Association meeting and was a grand success. The Colloquium drew a national and international audience with a total conference attendance of 443, and a pediatric conference attendance of 150.

Methods: We achieved our objectives through interactive lectures, concurrent scientific sessions, as well as workshops. Speakers were invited from a broad range of experience and backgrounds, and included clinicians, administrators and technicians from new and established programs, from hub and remote sites, and from academic centers and rural/underserved sites.

Results: The conference provided information to both the providers of telemedicine (hub sites) and users of telemedicine (remote sites), typically located in rural and underserved communities. We were able to share, disseminate, and train others in the development and improvement of clinical telemedicine programs.

Key Words: pediatrics; telehealth; rural health; access to care; healthcare disparities; quality of care

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Final Report

Purpose

The 4th Annual Pediatric Telehealth Colloquium was part of the Third Annual Mid-Year Meeting of the American Telemedicine Association held in Palm Springs, California. This conference included a dynamic course that provided useful tools for establishing new telehealth programs and to provide useful tips to successfully enhance and sustain existing programs. This Colloquium created a forum which brought together medical providers, hospital administrators and information technology specialists interested in increasing health care services through the use of technology.

The objectives for this two-day Colloquium were to: 1) provide an overview of the technical, administrative and clinical operations of a telemedicine program; 2) demonstrate how telemedicine can be used to assist in the care of pediatric patients in a variety of clinical settings; 3) disseminate information on the successful use of this technology to improve the access, quality and efficiency of care delivered to children; 4) provide the information required to ensure a self-sustaining, financially viable, successful telemedicine program; and 5) share current efforts on how to evaluate and research the impact of telemedicine on processes and outcomes of care.

Scope

Background and Context

Telemedicine is an innovative technology that uses telecommunications technology to deliver care at a distance. In pediatrics, regionalization of children's services has led to higher quality of care and improved outcomes among pediatric patients. However, this model of care results in disparities in access for children living in non-urban areas. Telemedicine is a novel means of filling the "specialist void" in rural and underserved communities, and is a new health care delivery model for increasing access to care, decreasing disparities in care, and increasing the overall quality of care provided to children who do not live near pediatric centers of excellence. Telemedicine allows pediatricians and pediatric specialists the means to provide care to children living in rural, remote, and underserved communities. As a result, telemedicine helps address barriers to care (e.g., geographic, financial) that contribute to health care inequalities. The use of telemedicine is rapidly growing and it is imperative that pediatricians, both generalists and specialists, be familiar with this technology so that they are able to provide specialty care to underserved children.

Setting

This conference was held in Palm Springs, California on September 23-25, 2009. This conference was the featured track of the Third Annual Mid-Year Meeting of the American Telemedicine Association (ATA). This conference was jointly conducted by the University of California Davis Health System, the UC Davis Children's Hospital, the Center for Health and Technology, the Office of Continuing Medical Education, and the ATA with grant support from the Agency for Healthcare Research and Quality (AHRQ).

Participants

This conference drew a national and international audience with 443 attendees, among which more than 150 attendees had specifically registered for the Pediatric Telehealth Colloquium. The conference audience included physician and non-physician health care providers, strategic and business development officers, and information technology specialists interested in developing or expanding a sustainable telemedicine program. Clinicians included generalists, family practitioners, emergency medicine physicians, pediatricians, nurses, nurse practitioners, physician assistants, and other providers from rural and underserved communities. In addition, the audience included the entire spectrum of pediatric specialists who use telemedicine in their practice.

Methods

Structure of the Conference

The planning committee met via phone-conference weekly during the planning phase of the conference. The planning committee identified speakers from a broad range of experience and backgrounds, and included clinicians, administrator and technicians from new and established programs, from hub and remote sites, and from academic and rural/underserved sites. The committee also discussed the format for the conference. The two-day Colloquium format included a pre-meeting tutorial session followed by a single session and a concurrent session in the morning. The afternoon had two concurrent sessions on the first day. On the second day, the program format had a similar format with a single session followed by a concurrent session in the morning. The afternoon had two concurrent sessions. The detailed conference program is described in the attached conference agenda (Appendix: Conference Plan).

Conference Plan: Day 1—Pre-Meeting Tutorial, Opening Plenary, Morning Single and Concurrent Session, Lunch Plenary and Afternoon Concurrent Session

Pre-meeting Tutorial. “Telemedicine Basics,” this session was targeted toward participants new to telemedicine. This session was moderated by James P. Marcin, Chair for the Colloquium

and included “The Fundamentals of Telemedicine Technology,” presented by Juan Trujano, Pediatric Telemedicine Program at UC Davis; “Operations, Credentialing and Reimbursement,” presented by Christine Martin, California Telemedicine & eHealth Center; and “Provider Perspective on Clinical Services and Outcomes,” presented by Eve-Lynn Nelson, KU Center for Telemedicine and Telehealth.

Opening Plenary. The opening plenary titled, “Telemedicine’s Role in Healthcare Reform and Stimulus Programs,” focused on current health care reforms in the United States and its impact on telemedicine and was presented by Karen S. Rheuban, President; Jonathan D. Linkous, CEO; and Gary Capistrant, Director of Public Policy of the American Telemedicine Association (ATA).

Morning Sessions. The morning session began with a Pediatric Telehealth Colloquium welcome and plenary session moderated by James P. Marcin, Chair for the colloquium. The plenary keynote addresses were given by Karen Rheuban, president of the ATA; and Dale Alverson, president-elect of the ATA. This plenary focused on the current and future role of pediatric telemedicine in healthcare.

The second hour of the morning session was concurrent sessions:

- Track 1: an expert panel discussion on Pediatric Telemedicine Administration. This session was moderated by Ms. Jana Katz-Bell, Assistant Dean at UC Davis and included Anna Orłowski, Health System Counsel at UC Davis; and Roy Kitchen, University of Arkansas for Medical Sciences. This session focused on legal and regulatory issues in using telemedicine technology to better serve pediatric patients.
- Track 2: an expert panel discussion on Inpatient Telemedicine Applications. This session was moderated by James P. Marcin, Chair for the Colloquium and included Miles Ellenby, Oregon Health & Sciences University; Kathleen Webster, Loyola University Medical Center; Whit Hall, University of Arkansas for Medical Sciences Medical Center; Nigel Armfield, Centre for Online Health, Royal Children’s Hospital, Herston, Australia. This session discussed the use of telemedicine and videoconferencing in the inpatient setting using examples from both national and international programs.

Lunch Plenary. “Twitter MD: Unleashing the Power of Social Media to Build Your Brand Online and Beyond,” presented by Bryan S. Vartabedian, Baylor College of Medicine, Texas. The plenary focused on what you need to know about online social networking and its role in personal branding and introduced the audience to a potentially career changing way to network.

Concurrent Afternoon Sessions.

- Track 1: Community and School-Based Telehealth. The first hour of this track was moderated by Jenny Kattlove, The Children’s Partnership and included Jane McGrath, University of New Mexico; Julia Pearce, Cherokee Health Systems; and Neil Herendeen, University of Rochester. This panel highlighted how telehealth in schools is becoming a viable avenue for meeting the health care needs of children. The panel discussed

examples of three different models of school-based telehealth: urban, rural, and state programs.

- **Track 1: Outpatient Telemedicine Applications.** The second hour of this track was moderated by Julie Hall-Barrow, Education Director, University of Arkansas for Medical Sciences and included Mitzi Scotten, University of Kansas Medical Center; Maggie Jaynes, Robert C. Byrd Health Science; and Ulfat Shaikh, UC Davis Health System. This panel discussed the use of telemedicine and videoconferencing in the outpatient setting using examples from various national programs.
- **Track 2: A Road-Map to Financing Telehealth Services. Where Have We Been and Where Do We Need to Go?** The first hour of this track was moderated by Dena Puskin, Director of the Federal Office for the Advancement of Telehealth and chair of the Federal Joint Working Group on Telemedicine and included Karen S. Rheuban, President of the ATA; and Jonathan D. Linkous, CEO of ATA. The panel focused on the current financing structure for telehealth services related to services for children and discussed challenges and successful strategies for working with the federal, state and private payers to expand coverage for telehealth services.

Research and Outcomes. The second hour of this track was moderated by Neil Herendeen, Associate Professor of Pediatrics, University of Rochester and included Kathleen Harrell, Salient Health Solutions; and Kourosh Parsapour, Miller Children’s Hospital. This panel highlighted the role for research in the evaluation of telehealth technologies and programs.

Conference Plan: Day 2—Morning Single and Concurrent Session, Lunch Plenary and Afternoon Concurrent Session

Morning Sessions. The morning session began with Start-up to Sustainability moderated by Jana Katz-Bell, Assistant Dean at UC Davis and included Neil Herendeen, University of Rochester; Kourosh Parsapour, Miller Children’s Hospital; and Nina M. Antoniotti, Marshfield Clinic TeleHealth Network. This panel focused on how to build a sustainable telehealth program, whether from grant funding or from the ground up. This panel discussed examples of three different models of successful programs: academic, commercial, and community provider network models.

The second hour of the morning session was concurrent:

- **Track 1** was an expert panel discussion on Child Advocacy, Coalition, and Telehealth. This session was moderated by Jenny Kattlove, The Children’s Partnership and included Karen Rheuban, president of the ATA; Dale Alverson, president-elect of the ATA; and Ryan Spaulding, Kansas University Medical Center. The panel highlighted the efforts at the state and federal level to advance telehealth policies for children.
- **Track 2: Research and Outcomes Platform Presentation panel.** This showcased the four presentations which were selected by the scientific committee for its novel and innovative use of telemedicine technology. The session was moderated by Madan Dharmar, Research Professor at the UC Davis Pediatric Telemedicine Program. The following

were the selected presentations, “Joslin Vison Network–Pediatric Diabetes Telemedicine Eye Care” by Paolo S. Silva, Harvard Medical School; “Pediatric Teledermatology: Observations based on 429 Consults” by Ilona J Freiden, University of California, San Francisco; “KidSafe© Telenet: Broad-Based Applications of a Statewide Child Abuse Telecommunications Network” by Janet Sullivan Wilson, University of Oklahoma Health Sciences Center; and “Evaluating Community Support for a Rural School-Based Telemedicine Network,” by Steve North, Graham Children’s Health Services.

Lunch Plenary. “Telemedicine–The California Experience,” presented by Thomas S. Nesbitt, Associate Vice Chancellor for Strategic Technologies and Alliances UC Davis Health System; and Sandra Shewry, CEO California Center for Connected Health. Baylor College of Medicine, Texas. They presented their experience in the deployment of telemedicine throughout the state and how this could translate into similar activities around the country.

Concurrent Afternoon Sessions.

- Track 1: Education. The first hour of this track was moderated by Bryan Burke, Associate Professor, and University of Arkansas for Medical Sciences and included Kathleen Webster, Loyola University Medical Center; Barry Boardman, Cook Children’s Healthcare System; and Candace Shaw, University of Oklahoma Health Sciences Center. This session showcased innovative tele-education programs targeting health professionals and parents, research in the area of tele-education, and the use of telemedicine in resident education and physician CME.
- Track 1: Telemental Health. The second hour of this track was moderated by Peter Yellowlees, Director of the Health Informatics, UC Davis Health System and included Saul Rosenberg, UC San Francisco; and Fred Stocker, University of Louisville School of Medicine. This panel discussed several important and timely issues in pediatric and adolescent telemental health.
- Track 2: Using Telehealth Globally to Address Healthcare Needs of Children Around the World. The first hour of this track was moderated by Dale Alverson, president-elect of the ATA and included Wael Abdel-Aal, Tele-Med International (Cairo, Egypt); and Anthony Smith, Centre for Online Health University of Queensland (Brisbane, Australia). This panel discussed and highlighted successful international telemedicine programs.
- Track 2: Alternative Applications and Telehealth. The second hour of this track was moderated by Vanessa Leigh McLaughlin, EDITHForge and included Noah Falstein, The Inspiracy; and Andy Donner, Physic Ventures. This panel discussed the role of alternative applications, such as serious games, use of cell phones and social networking, and remote monitoring technology in improving health outcomes.

Evaluation of Poster and Platform Presentation

The abstracts received from the call for posters were evaluated by the scientific review committee. The scientific review committee was comprised of five members from four

universities. The committee members evaluated each submission independently and scored them on a scale of 1-5 on two categories: 1) Scientific merit of the submission and 2) Novel and Innovative use of Telemedicine. The final score for each submission was calculated by the sum of the two scores. Each submission was ranked based on its final score and the top four submissions were offered the chance to present as a platform presentation. These and the next four submissions were invited to be presented as posters. The poster presentation was held on the first day of the Colloquium.

Data Source/Collection

The conference was evaluated using evaluation forms developed by the Office of Continuing Medical Education at the UC Davis Health System in accordance with the ACCME guidelines. The evaluations were comprised of an overall conference program evaluation, which queried participants on the information and techniques that they have acquired which will be useful in their practice. They were asked to measure their response on a Likert scale with 5 being “agree” to 1 being “disagree” on questions about the courses presented, their content, objectives achieved, meets expectations, free of bias, and will they recommend it to their colleagues. We also queried them on the logistical arrangements of the conference, namely, registration, course organization, syllabus, hotel accommodations and service. For each individual course, they were asked to evaluate the presenter and the course material covered in a similar evaluation format as the overall conference. Helpful comments and suggestions were solicited so that it would enable us to improve for our next conference.

Accreditation and CME Credits

All conference activities were planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for the Continuing Medical Education (ACCME) through the joint sponsorship of the Office of Continuing Medical Education of the UC Davis Health System and the American Telemedicine Association. The Office of Continuing Medical Education of the UC Davis Health System is accredited by the ACCME to provide continuing medical education for physicians and allied health professionals. We offered CME Category 1 Credits for physicians, physician assistants and registered nurses who participated in the conference.

Results

The 4th Annual Pediatric Telehealth Colloquium was held as part of the Third Annual Mid-Year Meeting of the ATA in Palm Springs, CA. The conference was sold out and a huge success with both national and international participation. The conference received 443 attendees, among which more than 150 attendees registered specifically for the Pediatric Telehealth Colloquium. This number was increased from the prior year’s Colloquium, as we were able to subsidize registration for participating rural and underserved community providers, and also

attract experts in field of pediatric telehealth to present at the Colloquium through the grant support from AHRQ.

Outcomes

The outcomes achieved through this conference are:

Introductions and Telemedicine Overview.

- Understanding current status of telemedicine in pediatric care
- Importance of Outreach and Medical Education using Telemedicine.
- Role of Telemedicine in the mental health of children

Pediatric Telemedicine Administration and Technology.

- Identifying key operation and management topics in developing and sustaining a telemedicine program
- Economic benefits and challenges, as well as understand legal and risk management issues
- Learned regularly used telemedicine terms and technologies

Research and Outcomes.

- Understanding the need to have measurable outcomes in your program.
- Identifying funding opportunities for expansion and evaluation of programs.
- Incentives for young investigators to pursue research by providing opportunities to present in the conference.

Tele-education.

- Role of telemedicine in providing continuing medical education to health professionals.
- Understanding the nuances of evaluating and publishing in tele-education.

Inpatient and Outpatient Specialty Care.

- Learned from successful telemedicine programs on the opportunities to provide quality specialist care over a distance.
- Understanding patient care and educational benefits of a partnership between specialty care physicians and primary care providers.

Tele-mental Health and Child Development.

- Using telemedicine as a developmental screening and early intervention tool in rural and/or underserved communities
- Using telemedicine in mental health as an effective means to deliver care to rural and/or underserved communities

Place Based Care.

- Identifying the need for place-based care for children of telemedicine in providing place-based care to children

Alternate Applications and Telehealth.

- Understanding the range of future applications of telemedicine and remote care
- Role of gaming in improving health outcomes in children

International Telemedicine.

- Participants gained an understanding of the various international applications of telemedicine
- Understanding reasons for doing international telehealth in developing countries and how telehealth is applied in various situations

Program Evaluations

The program evaluation based on ACCME guidelines is presented below. The average score for most categories in the evaluation was around 4.5 on a Likert scale range of 1-5. The participants of the conference felt that the conference covered a much-needed topic of interest in pediatric telehealth and contributed to their knowledge base to help in establishing a successful and sustainable telemedicine program. The summary of the overall evaluation of the conference is presented below.

Program Evaluation – 4th Annual Pediatric Telehealth Colloquium

Measured on a 5 point Likert Scale (5=Agree).

- | | |
|--|------|
| 1. Were the identified course objectives met? | 4.40 |
| 2. Did the course objectives meet your needs? | 4.37 |
| 3. Will the material presented be useful in your practice? | 4.38 |

4. Was the material presented new to you?	86% Yes
5. Was the material appropriate?	4.54
6. Did the program meet your expectations?	4.49
7. Was the program free of commercial bias?	94% Yes
8. Were the presentations well balanced and objective?	4.43
9. Would you recommend this course to your colleagues?	100% Yes
10. Did you attend last year's conference?	25% Yes
11. I first learned of this course by way of:	
• Brochure:	5.71 %
• Previous Attendance:	20.00 %
• Colleague:	31.43 %
• Employer:	0
• UC Davis CME Website:	2.86 %
• Internet:	22.86 %
• Calendar:	0
• Journal:	0
• Post Card:	2.86 %
• Other: ATA	14.29 %

12. Issues in cultural and linguistic competency (e.g., differences in prevalence, diagnosis, treatment in diverse populations; linguistic skills; pertinent cultural data) were adequately addressed in this activity.

- Strongly Agree: 33%
- Agree: 36%
- Neutral: 21%
- Disagree: 6%
- Strongly Disagree: 3%
- No Response: 5%

13. Please rate the following aspects of the program:

	AVG	5	4	3	2	1	NR
CME staff assistance	4.74	80%	14.29%	5.71%	0	0	0
Course registration procedures	4.74	80%	14.29%	5.71%	0	0	0
Overall course organization	4.77	77.14%	22.86%	0	0	0	0
Syllabus - CD	4.56	64.71%	26.47%	8.82%	0	0	0
Food service: meals	4.54	57.14%	40.00%	2.86%	0	0	0
Food service: breaks	4.34	52.94%	35.29%	11.76%	2.94%	0	0
Hotel registration	4.70	75.76%	18.18%	6.06%	0	0	0
Hotel accommodations	4.70	72.73%	24.24%	3.03%	0	0	0
Hotel personnel	4.76	78.79%	18.18%	3.03%	0	0	0
Hotel services	4.63	68.75 %	25.00 %	6.25 %	0	0	0

Key: 5 = Excellent, 4 = Good, 3 = Average, 2 = Fair, 1 = Poor

	Yes	No	N/A
Were the instructions to use the CME online system useful?	97.14 %	0 %	2.86 %
Was the CME evaluation worksheet useful?	88.57 %	5.71 %	5.71 %
Was the CME online system easy to use? (Evaluation and printing of your certificate)	94.44 %	0 %	5.56 %
14. I will apply knowledge from this activity in my clinical practice.	82.86 %	0 %	17.14 %

Significance/Implication

Through the funding opportunity from AHRQ, we were able to attract key experts in the field of pediatric telehealth to create a forum where they shared their experiences in establishing a successful telemedicine program. Such programs have proven benefits to the patients and have resulted in an overall reduction in health care costs within the framework of a financially sustainable model. While many telemedicine programs have failed, others have flourished; this

conference facilitated sharing of the successful programs' approach and financially sustainable models.

Contribution to Scientific Community

By learning directly from the leaders in pediatric telehealth research and program development, it helped the attendees to better understand:

- The basic technology of telemedicine and telecommunications
- How telemedicine can be use to improve and increase outreach in the local and remote communities
- The legal, regulatory, reimbursement, and contracting issues of a telehealth program
- The role of telemedicine in improving quality and efficiency of pediatric care delivered to children in various settings
- The funding opportunities and techniques for grant acquisition
- The strategic and administrative planning of a telehealth program to ensure a program's sustainability
- The financial impact of a telehealth program

List of Publications and Products

Course Materials

Course materials for the Pediatric Telehealth Colloquium were provided to all conference registrants. This included the program agenda, Colloquium information, faculty and roster of attendees, accreditation statements, acknowledgements, disclosures, abstracts and evaluation forms.

Course DVD

A course DVD was mailed to all registrants. This DVD included a program agenda, Colloquium information, acknowledgements, disclosures, presentation slides, and abstracts. The DVD was provided free of charge to providers, administrators and technicians from rural and/or medically underserved clinics or hospitals.

Program Agenda

Program agenda for the conference is available through the ATA website.

Presentation Slides

All presentation slides were available through ATA.

Abstracts

All selected abstracts were published in the journal “Telemedicine and e-Health,” the official journal for ATA: Abstracts from the 2009 American Telemedicine Association Mid-Year Meeting, *Telemedicine and e-Health*. September 2009, 15(7): 718-727.